

ICOT2015

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Enhancing Teachers' Understanding of How to Develop Students' Thinking

Dr. Ann S. Pihlgren Ignite Research Institute



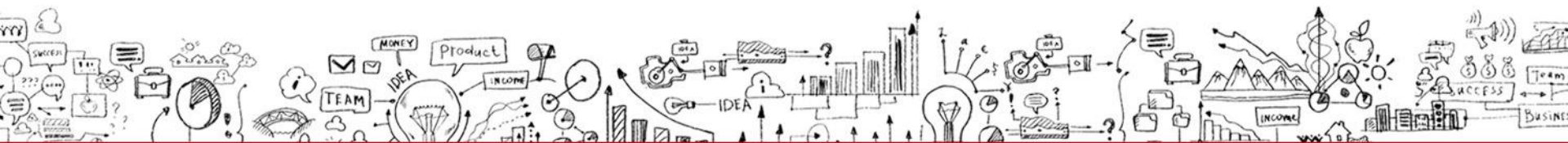
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Part of a larger study

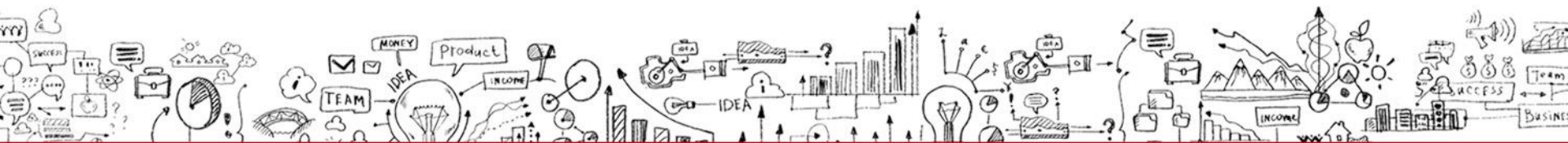
- Pihlgren, A. S. (2013). *Planning for Thinking and Cognitive Development of Students.*
- Pihlgren, A. S. (2014). *Complementary Education in Classrooms and Afterschools.*
- At www.igniteresearch.org





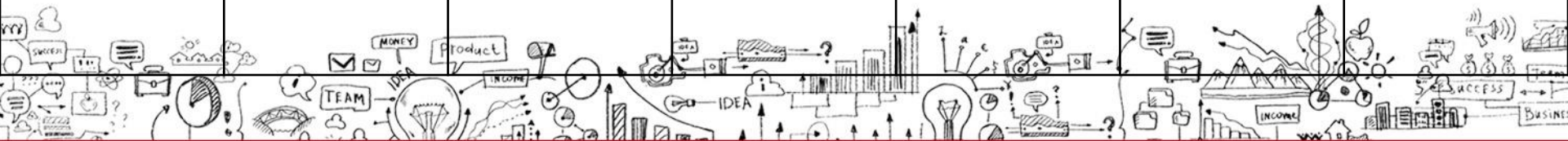
Five different teaching styles identified

- The common teaching style
- The student investigative teaching style
- The scaffolding teaching style
- The ‘moralistic’ teaching style
- The ‘laissez-faire’ teaching style





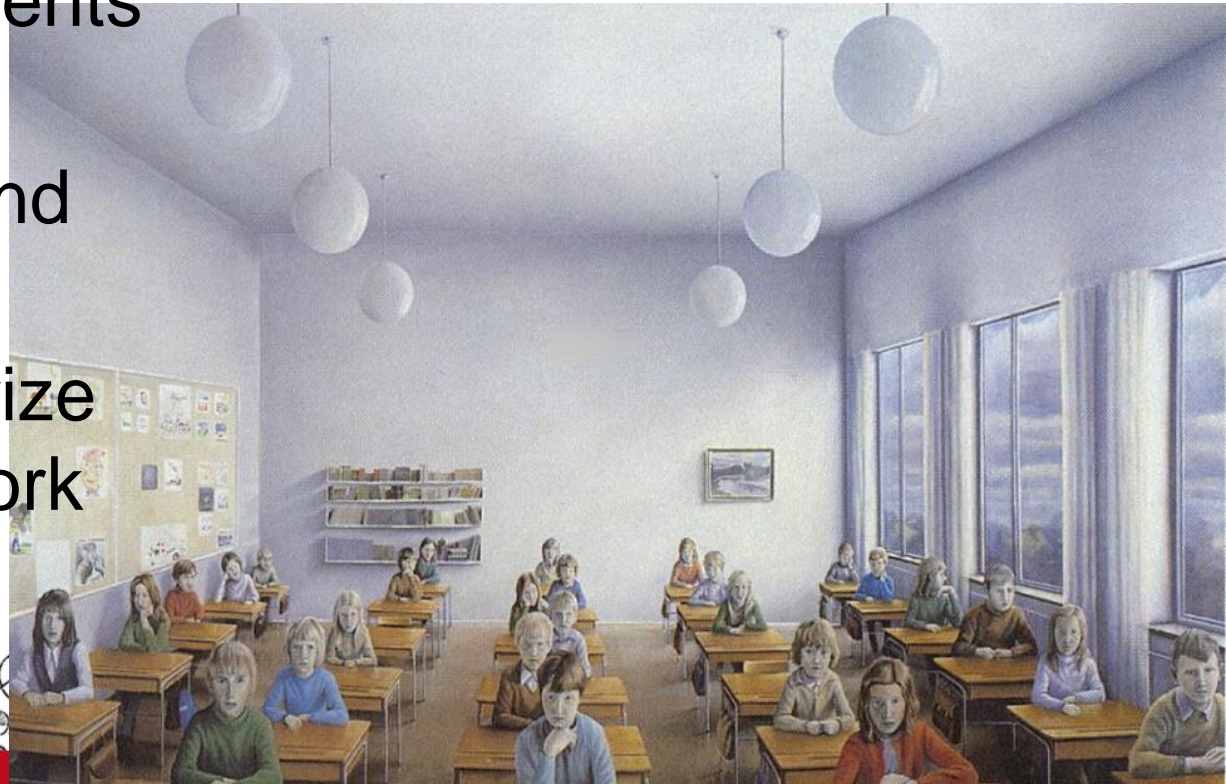
| THE KNOWLEDGE DIMENSION | THE COGNITIVE PROCESS DIMENSION | | | | | |
|-----------------------------|---------------------------------|---------------|----------|------------|-------------|-----------|
| | 1. Remember | 2. Understand | 3. Apply | 4. Analyze | 5. Evaluate | 6. Create |
| A. Factual knowledge | | | | | | |
| B. Conceptual knowledge | | | | | | |
| C. Procedural knowledge | | | | | | |
| D. Meta-cognitive knowledge | | | | | | |





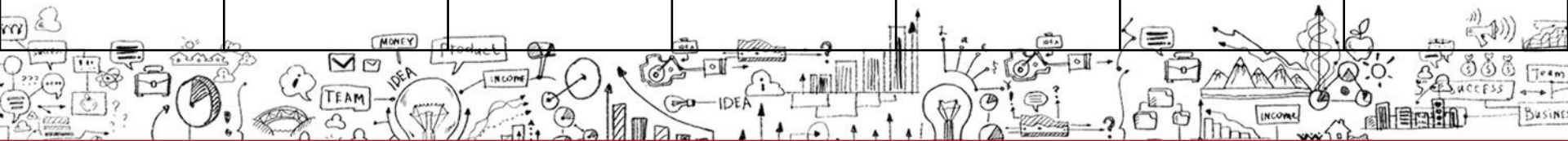
The common teaching style

- Start with the teacher introducing
- The teacher presents new knowledge
- Class practice and teacher corrects
- Teacher summarize and give homework





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The scaffolding teaching style

1. Puzzlement, perplexity and challenge
2. Analysis:
 - a) What did we learn?
 - b) What do we want to understand now?
 - c) Thinking tools and strategies
3. New knowledge
4. Generalization and transfer
5. Evaluate the work
 - a) What did we learn?
 - b) How did we learn?





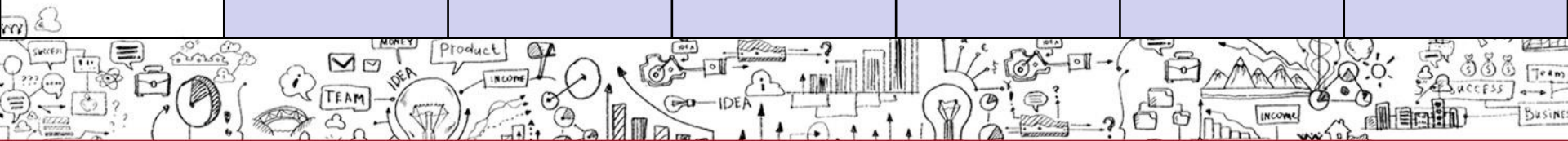
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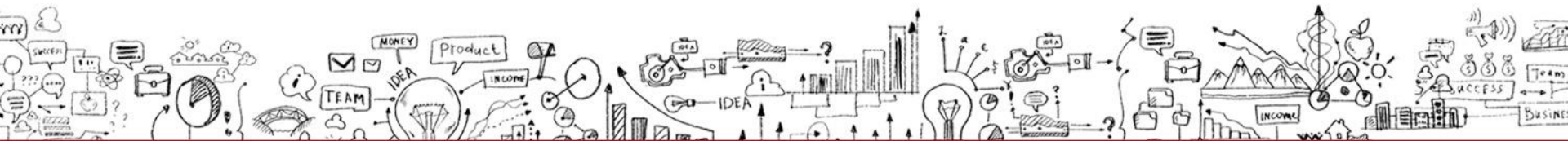
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Thinking classroom

- The teacher plans, assesses, chooses activities and tools, and arranges the setting, with strong focus on fostering students' habits of mind, rather than fixating on factual knowledge or covering of certain knowledge areas.
- The contextual and communicational interactions play a vital part of support in a thinking environment.



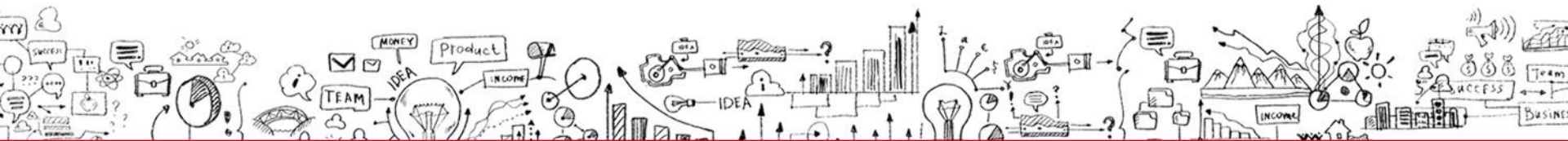


The basic program

- Group development over time
- Lectures and discussions of connection theory-practice
- Assignments between sessions and presented in auditorium
 - Observations
 - Planning and assessing
 - Trying new methods
- Reading research literature and discussing

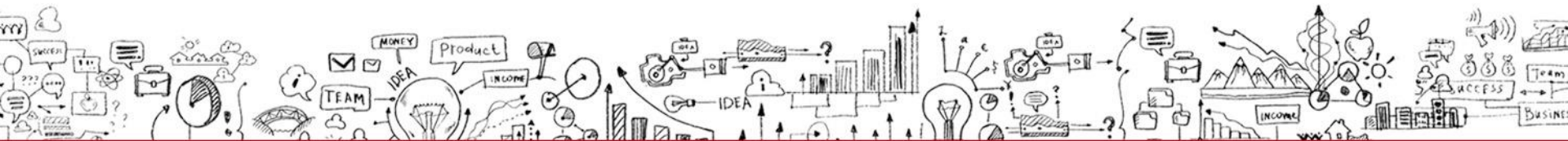
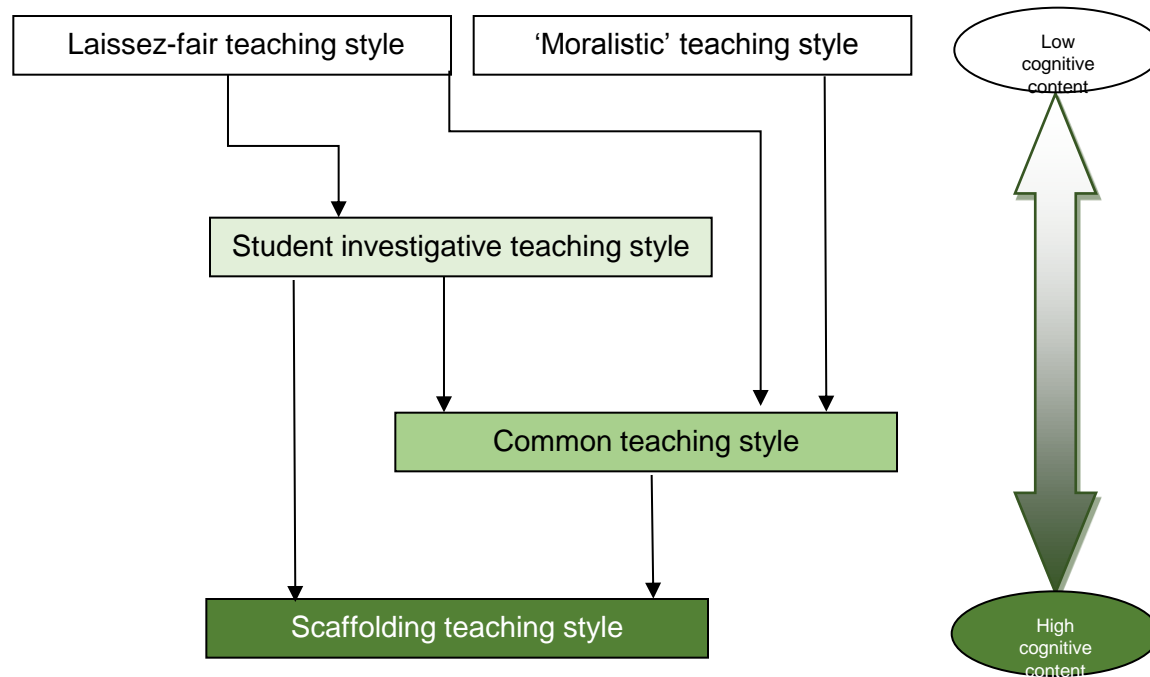


- 12 units in 8 schools/afterschools
- Observing and interviewing: 125 lessons in school (K-12) and 60 afterschool activities (K-6)
- Observations of events and presentations during program
- Interviews of staff and leaders about effects





Teaching style movements





3 strong factors

- Introducing mandatory assignments to be tried out with students, and presented in auditorium to researcher, colleagues, and principal for feedback and open, reflective dialogue.
- Nurturing and demanding rigorous intellectual work in the presentations, the feedback, and by reading research literature.
- The participation of the principal or vice principal giving the work legitimacy and importance.

